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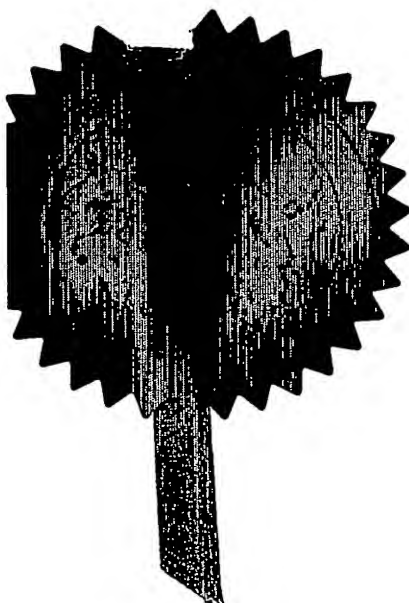
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Dated 18 March 2004

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-6 AUG 2003

Request for grant of a patent  
NEWPORT

The Patent Office  
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1. Your Reference BA/SIS/Y1475

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Patents ADP number

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6. Priority claimed to: Country Application number Date of filing

7. Divisional status claimed from: Number of parent application Date of filing

8. Is a statement of inventorship and  
of right to grant a patent required in  
support of this application? NO

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description

12 (x2)

Claim(s)

Abstract

Drawing(s)

2 (x2)

10. If you are also filing any of the following, state how many against each item

Priority documents

Translation of priority documents

Statement of inventorship and right to grant a patent (PF 7/77)

Request for a preliminary examination and search (PF 9/77)

Request for substantive examination (PF 10/77)

Any other documents (please specify)

11.

We request the grant of a patent on the basis of this application.  
Signature Date

APPLEYARD LEES

05 August 2003

*Appleyard Lees*

12. Contact

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## Improvements in and Relating to Tree Stands

### Field of the Invention

5 This invention relates to tree stands, and in particular, but not exclusively to Christmas tree stands. The invention also extends to kits including a tree stand; and a method of securing a tree in a tree stand.

### 10 Background to the Invention

It is known to place cut trees, shrubs or other plants in support apparatus in the form of holders or stands to present the plant in an aesthetically appealing manner.

15 Particularly it is known at Christmas time to place cut trees, usually fir or spruce trees, in Christmas tree stands so that the Christmas tree may be presented in a domestic environment and decorated with appropriate  
20 Christmas decorations.

There are various types of tree stands available for securing a Christmas tree. One commonly used type of stand is a cutout section of a tree trunk which has a  
25 recess cut or bored partway through the section. The cut trunk end of a Christmas tree is simply inserted into the recess in the stand. The weight of the cutout section effects stabilization of the Christmas tree and reduces the chance of the tree toppling. The circumference of the  
30 Christmas tree is usually chosen to be substantially identical or slightly larger than the circumference of the recess in the stand, to enable a snug fit of the tree in the stand.

A problem with the above-mentioned type of stand is that, due to the snug fit of the Christmas tree in the recess, there is no provision for a water reservoir which will  
5 enable the cut end of the tree to draw water and increase the working lifetime of the tree.

A second known type of stand comprises a generally cylindrical tube having a number of apertures into which  
10 can be threaded screws, and when a tree is inserted into the stand, the screws may be inserted such that they protrude into the cylinder and abut the trunk of the tree in order to tightly restrain the tree in the stand. The stand is commonly connected to, or forms part of a  
15 weighted base member which helps to prevent the tree and stand from toppling over in use. Such stands can be used with a water reservoir, but in practice it is difficult to support the tree in a suitable position relative to a water reservoir, and water from the reservoir may easily  
20 spill.

It is therefore an aim of preferred embodiments of the present invention to overcome or mitigate a problem of the prior art, whether expressly stated herein or not.

25

### Summary of the Invention

According to a first aspect of the present invention there is provided a tree stand comprising a tree-retaining  
30 member and a diaphragm, wherein the tree stand is arrangeable, in use with a fluid reservoir comprising an aperture such that in use the diaphragm substantially fills the aperture of the fluid reservoir.

Thus fluid from a fluid reservoir is largely prevented from spillage. Spillage may be a problem when a tree is transported in place in a tree stand, or if a tree stand  
5 is accidentally knocked or tipped.

The tree stand is preferably arranged to be detachably connectable to a fluid reservoir, in use. Alternatively the tree stand may be arranged to be immovably fixed to  
10 the fluid reservoir, in use.

Suitably, the diaphragm is substantially circular in plan. Suitably, the diaphragm comprises a body region and an edge region. Suitably, the edge region is arrangeable to  
15 in use contact an edge of the aperture of a fluid reservoir when the tree stand is arranged with a fluid reservoir. Suitably, the edge region of the diaphragm is arranged to be push fit within the aperture of the fluid reservoir. Suitably, the edge region of the diaphragm is  
20 arranged to extend above and/or below the body of diaphragm.

Suitably, the tree-retaining member is mounted within the diaphragm. Suitably, the tree-retaining member comprises  
25 an opening arranged such that when the tree stand is arranged in use with a fluid reservoir, a tree retained therein can communicate with the interior of the fluid reservoir.

30 Suitably, the tree-retaining member comprises a substantially cylindrical member, and may be positioned concentrically within the diaphragm.

The tree-retaining member may extend above and/or below the body of the diaphragm. Preferably the tree-retaining member is the sole means for retaining a tree in the tree stand. Thus preferably, a tree inserted into the tree-retaining member is solely retained by abutment of the tree with the interior surface of the tree-retaining member. Thus preferably the tree-retaining member does not comprise mechanical means to retain a tree. Thus in order to retain a tree in the tree stand a user does not have to effect operation of any mechanical means such as screws or bolts, and does not therefore have to kneel or bend to the ground level to insert and retain the tree.

Preferably the diaphragm comprises a passageway therein which effects fluid communication between the exterior and interior of the fluid reservoir. Preferably the diaphragm comprises a plurality of passageways to effect fluid communication between the exterior and interior of the fluid reservoir.

20

Suitably, an end of the or each passageway is located at a relatively low point on the diaphragm when the stand is arranged with a fluid reservoir.

25 Suitably the passageway or passageways are formed at or near to the tree-retaining member. Suitably, the passageway or passageways are formed toward the centre of the diaphragm.

30 Suitably, the passageways or passageways are defined by a tube.

Suitably, the tree-retaining member comprises a cut out section to provide a passageway. In this instance the passageway is in use defined by the tree and the tree-retaining member. Suitably, the edge region of the diaphragm comprises a cut out section to provide a passageway. In this instance the passageway is in use defined by the edge region of the diaphragm and an edge of the aperture of the fluid reservoir. Suitably, the tree-retaining member and/or edge region of the diaphragm comprise a plurality of cut out sections.

Suitably, the tree-retaining member is supported by a strengthening rib. Suitably, the tree-retaining member is supported by a plurality of strengthening ribs.

The tree stand may be of any suitable material, but is preferably of plastics material, or of metal (including alloy). The tree stand may be constructed from polyethylene, ABS, iron, cast iron, aluminium or stainless steel.

According to a second aspect of the present invention there is provided a kit comprising a tree stand of the first aspect of the invention and a tree.

According to a third aspect of the present invention there is provided a kit comprising a tree stand of the first aspect of the invention and a fluid reservoir.

Preferably the tree is a cut tree suitable for use as a Christmas tree.



Suitably the cut tree comprises a trunk which in the region of the cut end thereof, has a circumference substantially identical to the interior circumference of the tree-retaining member.

5

According to a fourth aspect of the present invention there is provided a method of securing a cut tree in a tree stand, the method comprising the steps of:

10 (a) providing a tree stand comprising a tree-retaining member and a diaphragm;

(b) providing a fluid reservoir comprising an aperture;

15

(c) arranging the tree stand such that the diaphragm substantially fills the aperture of the fluid reservoir; and

20 (d) inserting the free end of the trunk of a cut tree into the tree-retaining member.

By cut tree we mean a tree which has been cut by any suitable means to provide a cut end of the trunk of the tree distal to the apex of the tree. Thus trees may be cut by chopping, cutting, sawing and the like for example.

Preferably the method comprises a step before step (d) of shaping a portion of the trunk of the cut tree at the cut end of the tree such that its surface dimensions are suitable to be received in the tree-retaining member.

30

Preferably the method comprises a step before step (d) of shaping a portion of the trunk of the cut tree at the cut end of the tree such that its surface dimensions are suitable to be received in the tree-retaining member; and

5

The cut end of the trunk of the tree may be shaped by any suitable means, including sawing, chopping, shaving, planning or the like.

- 10 Preferably the method further comprises the step of providing water to the fluid reservoir, and water may be provided to partly or completely fill the reservoir. The water may be provided at step (b), and/or after the completion of all steps (a) to (d).

15

It is to be understood that steps (a) to (d) are not necessarily performed from (a) to (d) in alphabetical order. For instance, step (c) may be performed after the completion of all other steps.

20

Preferably the tree stand is as described for the first aspect of the invention.

#### Brief Description of the Drawings

25

For a better understanding of the various aspects of the invention, and to show how embodiments of the same may be put into practice, a specific embodiment will now be described, with reference to the accompanying drawings, in which:

30

Figure 1 illustrates a side view of a preferred embodiment of the tree stand of the invention;

Figure 2 illustrates a underside plan view of the embodiment shown in Figure 1;

5 Figure 3 illustrates a side sectional view of the embodiment shown in Figure 1, arranged in use with a fluid reservoir;

Figure 4 illustrates a plan view of a second preferred  
10 embodiment of the tree stand of the invention.

#### Description of the Preferred Embodiment

Referring to Figures 1 and 2 a tree stand 10 comprises a  
15 diaphragm 12. The diaphragm 12 comprises a body region 14 and an edge region 16. The tree stand 10 further comprises a tree-retaining member 18 mounted within the diaphragm 12. The tree-retaining member comprises an opening 20 in a substantially cylindrical member 22. The  
20 substantially cylindrical member 22 is positioned concentrically within the diaphragm 12, and extends below the body region 14 of the diaphragm 12.

The tree stand 10 is arrangeable in use with a fluid  
25 reservoir 30 comprising an aperture therein, e.g. a bucket or plant pot, see Figure 3. When the tree stand 10 is in use with the fluid reservoir 30, the edge region 16 of the diaphragm 12 contacts the edge of the aperture of the fluid reservoir and the body region 14 and the edge region  
30 of the diaphragm 12 substantially fill the aperture of the fluid reservoir 30. In this way any water 32 or other fluid within the fluid reservoir 30 is largely prevented

from spilling out of the fluid reservoir 30 if the reservoir is knocked or tipped.

The edge region 16 can extend above and/or below the body region to enable a secure push fit to be made with the edge of the aperture. The edge region 16 may comprise a section of a cylinder, or may be frustoconical as show in Figure 3 to fit into a range of apertures.

The tree-retaining member 18 is arranged such that when the tree stand 10 is arranged in use with a fluid reservoir, a tree retained therein can communicate with the interior of the fluid reservoir. In use, a tree, such as a Christmas tree, which has been cut down by any suitable means, first has its trunk, at the cut end thereof, shaped to substantially the identical circumference as the interior circumference of opening 20 of the tree-retaining member 18.

The cut end of the tree is then inserted into the tree-retaining member 18. As the circumference of the cut end of the tree is substantially identical to the interior circumference of the retaining member 18, the tree is held tight in the tree stand 10 without the need to use any mechanical means such as screws, bolts or the like, to secure the tree in the stand 10 and prevent it moving about within the tree stand 10. As mechanical means are not needed to secure the tree, the tree stand 10 of the embodiment shown in Figures 1 and 2 is easy to use and a tree can be inserted without the user having to bend down to ground level and actuate mechanical means. Thus the tree stand 10 is particularly suited for use to elderly and infirm persons.

As the tree-retaining member 18 is arranged such that when the tree stand 10 is arranged in use with a fluid reservoir, a tree retained therein can communicate with the interior of the fluid reservoir, the tree can contact fluid within the fluid reservoir and draw it up. In this way the tree stand 10 provides a convenient way of supporting a tree relative to a fluid reservoir. Furthermore, as the cut end of the tree substantially fills the opening 20 of the tree-retaining member 18, fluid from the fluid reservoir is impeded from passing from the interior of the fluid chamber to the exterior of the fluid chamber through the opening 20. This reduces fluid spillage if the tree, tree stand or fluid chamber are tipped or knocked.

The diaphragm 12 comprises passageways 23 therein which effects fluid communication between the exterior and interior of the fluid reservoir when the tree stand 10 is arranged in use with a fluid chamber. The passageways 23 comprise tubes through the diaphragm, and allow a user to add water or other fluid to the fluid chamber without removing the tree from the tree stand 10, or removing the tree stand 10 from the fluid chamber. Therefore, the passageways make the tree stand 10 convenient to use when it desired to keep the cut end of a tree in contact with water. Keeping the cut end of a tree in contact with water helps to ensure the tree stays fresh for its whole working lifetime. In addition, the passageways prevent a build up of pressure within the fluid chamber, for example if the temperature of the fluid chamber increases.

Each passageway 23 is located at a relatively low point on the diaphragm 12 when the tree stand 10 is arranged with a

fluid reservoir. Therefore, water can be poured on the diaphragm 12 from where it drains through the passageways 23 and into the fluid reservoir. The edge region 16 of the diaphragm 12 can extend above the body region of the diaphragm to allow a suitable buffer for water poured on the diaphragm while that water drains through the passageways 23.

In an alternative embodiment shown in Figure 4 passageways are provided as cut out sections of the tree-retaining member and/or edge region. The cut out sections of the tree-retaining member 40 are not filled by the cut end of the tree, and therefore allow fluid to drain between the tree and the tree retaining member when a tree is arranged in place within the tree retaining member. Similarly, the cut out sections 42 of the edge region of the diaphragm allow fluid to drain between the tree stand and the fluid reservoir when the tree stand is arranged in place within the fluid reservoir.

The tree-retaining member 18 is supported by four strengthening ribs 24. The strengthening ribs 24 reinforce the junction between the diaphragm 12 and the tree-retaining member 18, making the tree stand 10 more resistant to stresses arising from movement of the tree relative to the tree stand 10.

Thus a tree stand has been described that enables a user to conveniently support a tree relative to a fluid reservoir. The tree stand can be used to support a tree relative to other support structures or bases, for example plant pots or containers that are not capable of holding fluids. The tree stand helps to reduce spillage or water

from within a fluid reservoir, which is particularly advantageous in the home, or when trees are being transported. Furthermore, the tree stand is convenient to use, both in terms of arrangement with a tree and for  
5 replenishing the contents of the fluid reservoir.

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and  
10 which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification  
15 (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

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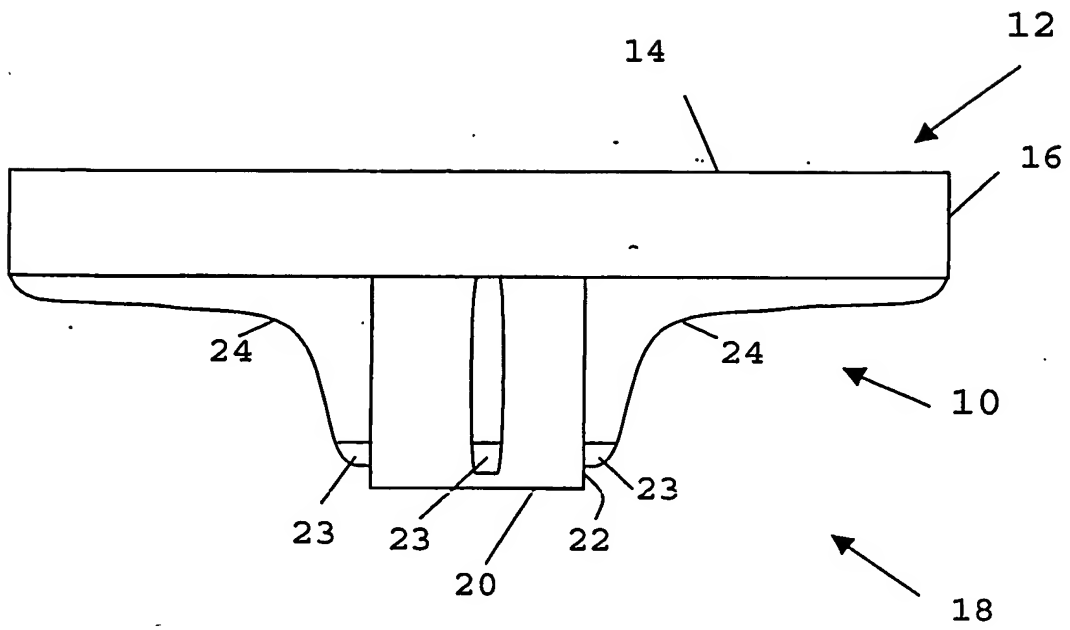
Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated  
25 otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of the  
30 foregoing embodiment(s). The invention extend to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel

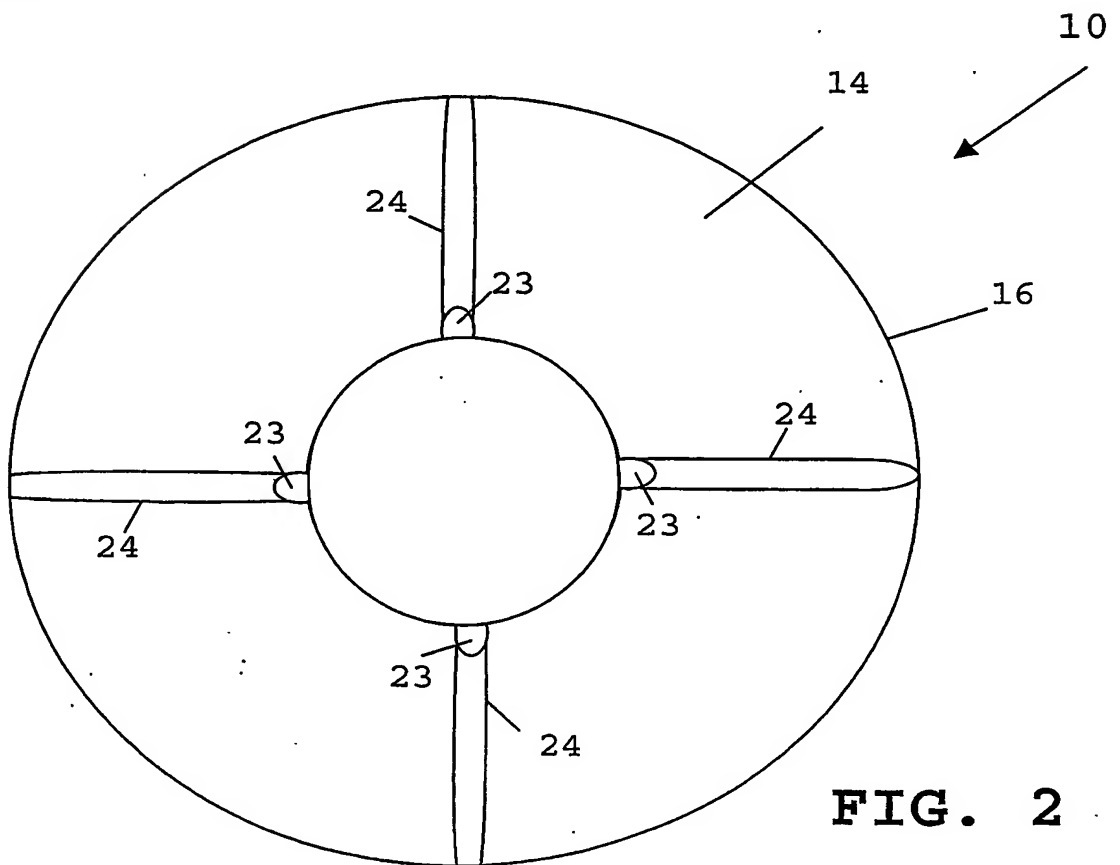
combination, of the steps of any method or process so disclosed.



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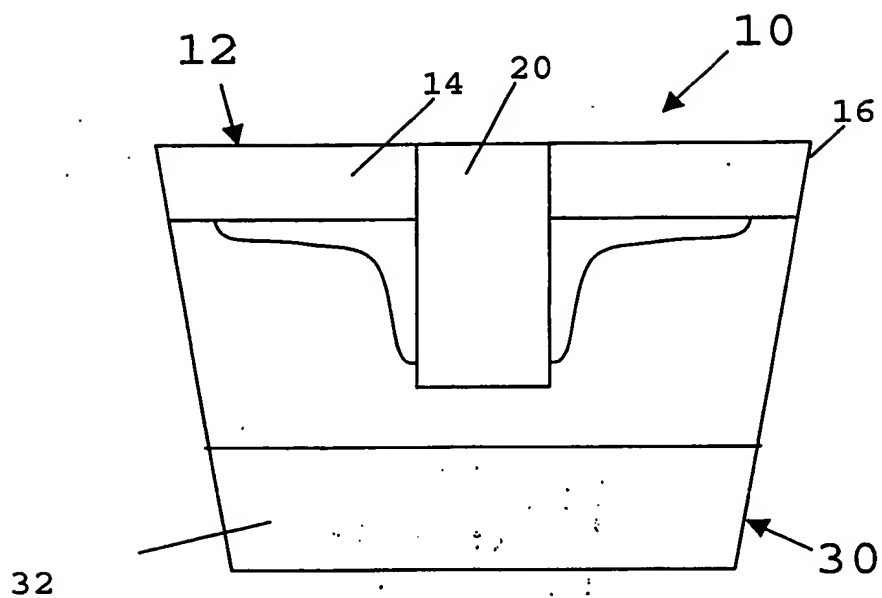


**FIG. 1**

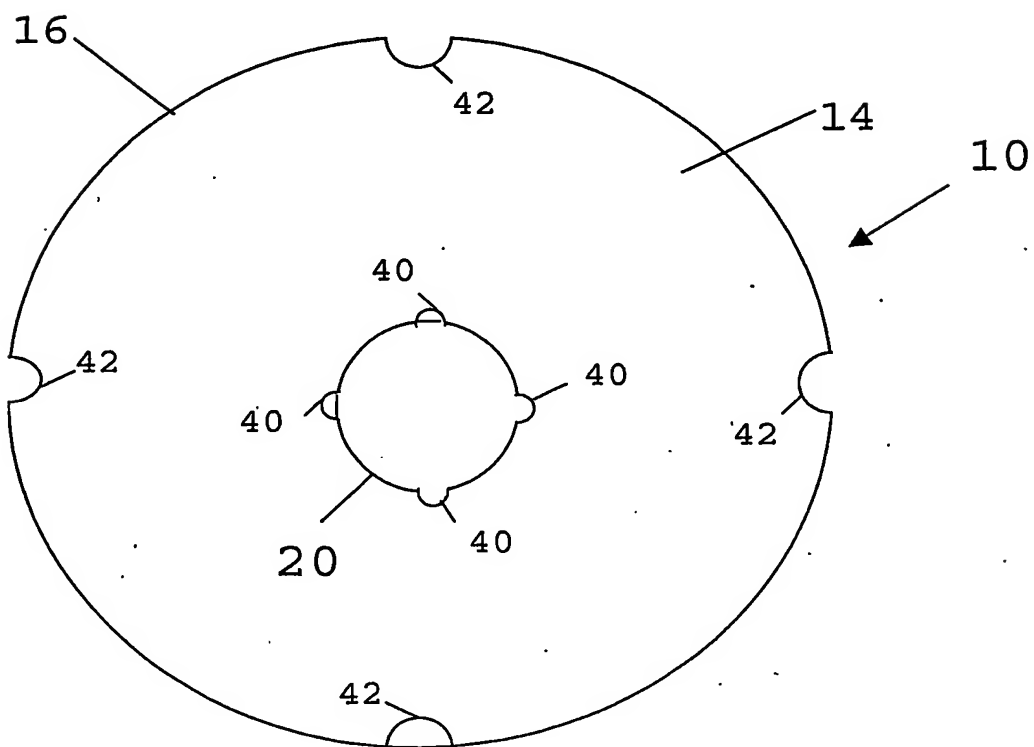


**FIG. 2**

2/2



**FIG. 3.**



**FIG. 4**

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